

Fig. 1
Electronic Messaging
Engines Flow
Diagram

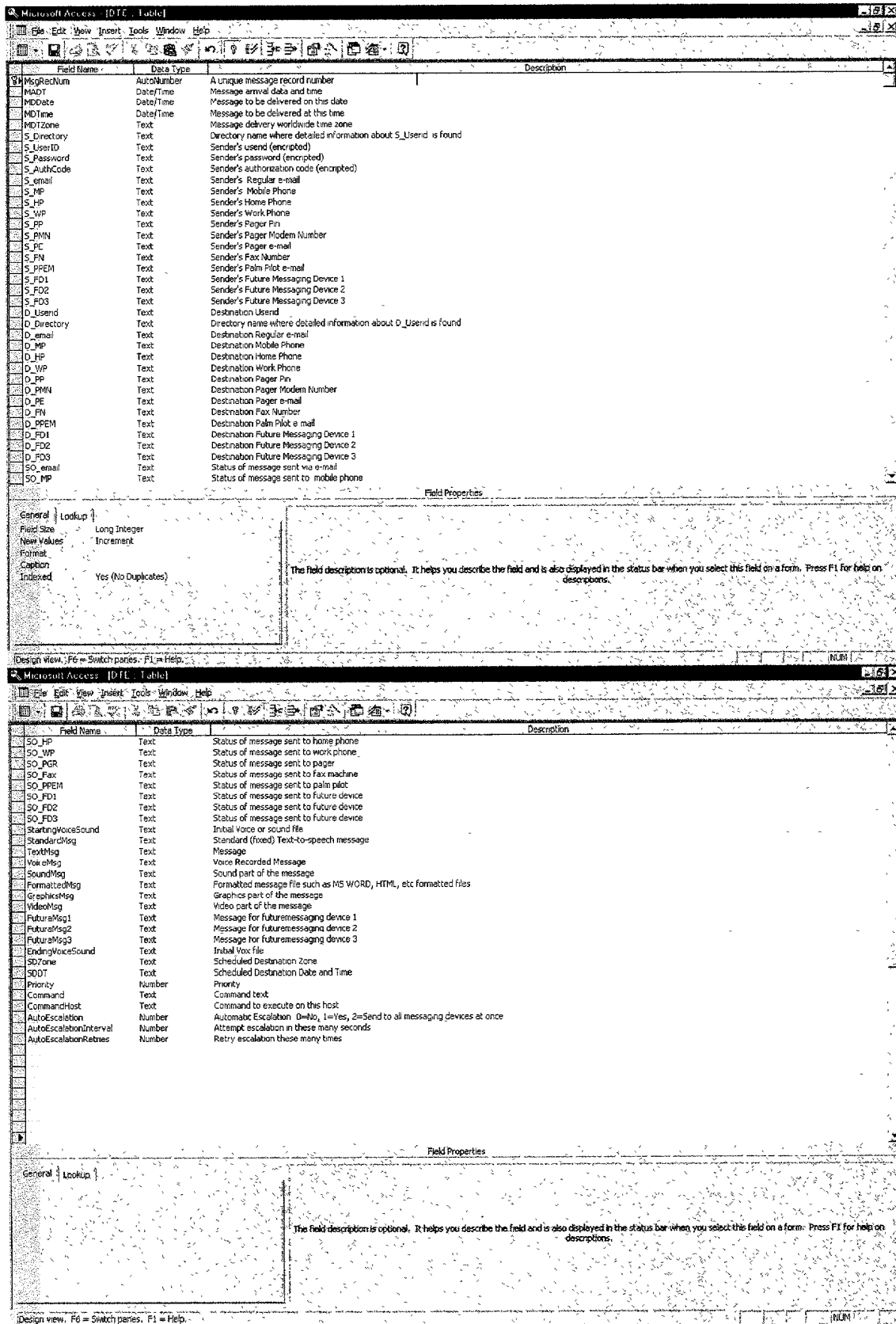


FIG. 2 Shows various database fields

Userid: 544413988
Password: XXXXXXXXX
AuthCode: 987654321
SendTo: MobilePhone=2149998765, Email=samwals@emsgtech.com, Fax=9729991234,
SendTo: WorkPhone=2148887766, Pager=1234567890@alphapage.Windfelt.com

Server SRV001 is not functioning properly. Please check as soon as possible.

FIG. 3 Sample e-mail/fax by which a message can be sent out.

In this example, a sender sends an e-mail or a fax in a predefined format as shown above. Each line starts with a special tag such as Userid:, Password: AuthCode: , and SendTo:. Then, there is a blank line. After that is the message to be sent. The Userid:, Password: AuthCode: , and SendTo: tags contain the appropriate information that is parsed and processed by the system. The sender, in this example, wants to send the message to a Mobile Phone, an e-mail, a Fax, a Work Phone and a Pager. Therefore, the message sender specifies the required information. The system checks the Userid, Password, and the AuthCode and if correct, sends the message out as requested. It automatically converts the text message to speech to be delivered to telephones and also puts it in an e-mail and a fax. For the pager, the system sends an e-mail to 1234567890@alphapage.Windfelt.com containing the specified message and let's the service provider handle it. Note that though this example shows email/fax, this idea could be extended to other messaging media as detailed in the document.

To: samwals@emsgtech.com
From: Electronic Messaging Engines
Subject: An important alert

When responding back to this message via the Remote Command Execution (RCE), please use the following message record number: 76884533

This message was sent to:
MobilePhone=2149998765, Email=samwals@emsgtech.com, Fax=9729991234,
WorkPhone=2148887766, Pager=1234567890@alphapage.Windfelt.com

Server SRV001 is not functioning properly. Please check as soon as possible

FIG. 4 Sample e-mail/fax received.

NOTE: Each of the engines includes a unique identification number such as, MsgRecNum in database DB-1 (Fig 1 (11)) and Db-2 (Fig 1 (18)). This number is used as part of response back for the system to know which message is a responder responding back to. Similarly, message with same information is received on other messaging devices as detailed in the document.

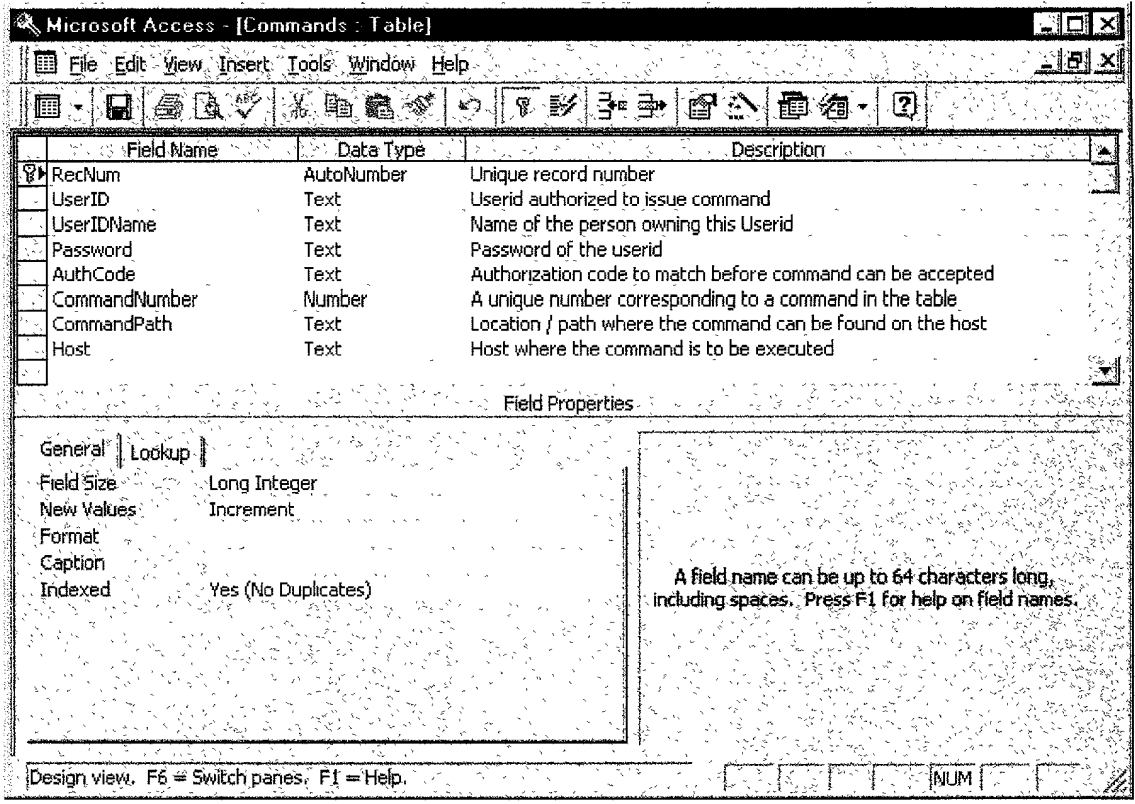


FIG. 5 Commands Table Description

The table shows the various fields in the Commands table that is used by the Remote Command Execution (RCE) facility of this invention.

Microsoft Access - [Commands Table]

RecNum	UserID	UserIDName	Password	AuthCode	CommandNumber	CommandPath	Host
1	544413988	SANJIV	XXXXXXXX	987654321	1	C:\RCE\Diag1.exe	SRV001
2	544413988	SANJIV	XXXXXXXX	987654321	2	C:\RCE\Diag2.exe	SRV001
3	544413988	SANJIV	XXXXXXXX	987654321	3	C:\RCE\VRPTX.exe	SRV002
4	544413988	SANJIV	XXXXXXXX	987654321	4	C:\RCE\Reboot.exe	SRV002
5	654789922	NEETU	WWWWWWW	021234567	1	C:\RCE\Diag1.exe	SRV001
6	654789922	NEETU	WWWWWWW	021234567	2	C:\RCE\Diag2.exe	SRV001
7	654789922	NEETU	WWWWWWW	021234567	3	C:\RCE\VRPTX.exe	SRV002
8	654789922	NEETU	WWWWWWW	021234567	4	C:\RCE\Reboot.exe	SRV002
9	256900781	SHIVUM	ABCDEF	223344556	1	C:\RCE\Diag1.exe	SRV001
10	256900781	SHIVUM	ABCDEF	223344556	2	C:\RCE\Diag2.exe	SRV001
11	256900781	SHIVUM	ABCDEF	223344556	3	C:\RCE\VRPTX.exe	SRV002
12	256900781	SHIVUM	ABCDEF	223344556	4	C:\RCE\Reboot.exe	SRV002
13	975317680	NEIL	NKAAKN	131284131	1	D:\RCE2\Cmd1.exe	SRV001
17	975317680	NEIL	NKAAKN	131284131	2	D:\RCE2\DiagCMD2.exe	SRV001
18	975317680	NEIL	NKAAKN	131284131	3	C:\RCE2\Alert.exe	SRV002
19	975317680	NEIL	NKAAKN	131284131	4	C:\RCE\Reboot.exe	SRV002
(AutoNumber)					0		

Records: 17 of 17

Userid authorized to issue command

FIG. 6 Sample Commands Table Entries

This table is used by the system to allow authorized users to be able to execute command through the Remote Command Execution (RCE) facility of this invention.

```

[DTE_Server]
DTE-1_Server=216.87.148.210
Port1=1001,1002
DTE-2_Server=216.87.148.211
Port1=1001,1002
DTE-3_Server=216.87.148.212
Port2=1001,1002
.....
.....

[Automatic_Escalation]
Escalation_Device_1=Fax
Escalation_Device_2=Email
Escalation_Device_3=Pager
Escalation_Device_4=MobilePhone
Escalation_Device_5=WorkPhone
Escalation_Device_6=PamPilot
Escalation_Device_7=HomePhone
Escalation_Device_8=Future_Device

[IntelligentDecisionMaking]
AutomaticWakeupTimeComputation=ON
AutomaticTimeZoneComputation=ON

[Database]
Database=C:\ape1d2\DTE_Client.mdb

[ProcessRecs]
Retries=3
DelRecs=1
Interval=60

[License]
Key=EMSG0000-BR01K2PSNEK-12/31/2001-11220ENG

[Logging]
Mode=NORMAL

[Reports]
REMail=SamWals2000@yahoo.com
AutoRep=N
.....
.....

```

FIG. 7 Sample INI file

This file is used by the various engines at initialization time. It serves as start-up parameters.

To: EMMERB@emsgtech.com
From: samwals@emsgtech.com
Subject: RCE response back

Userid: 544413988
Password: XXXXXXXX
AuthCode: 987654321
MsgRecNum: 76884533
Command: 2

Issuing command 2. Intend to run Diag2 on SRV001.

FIG. 8

Sample e-mail/fax by which a Command is sent back (RCE).

Sample method of communication back to the system via e-mail. Note that the user could have used other messaging devices, such as, but not limited to a telephone to send such a response back and request execution of a command. The sample, above, specifies the MsgRecNum originally received as part of the message and executes Command 2 (see FIG. 7 for the Command Table). Similarly, responses can be sent back and commands can be executed from other messaging devices by supplying the information shown above.

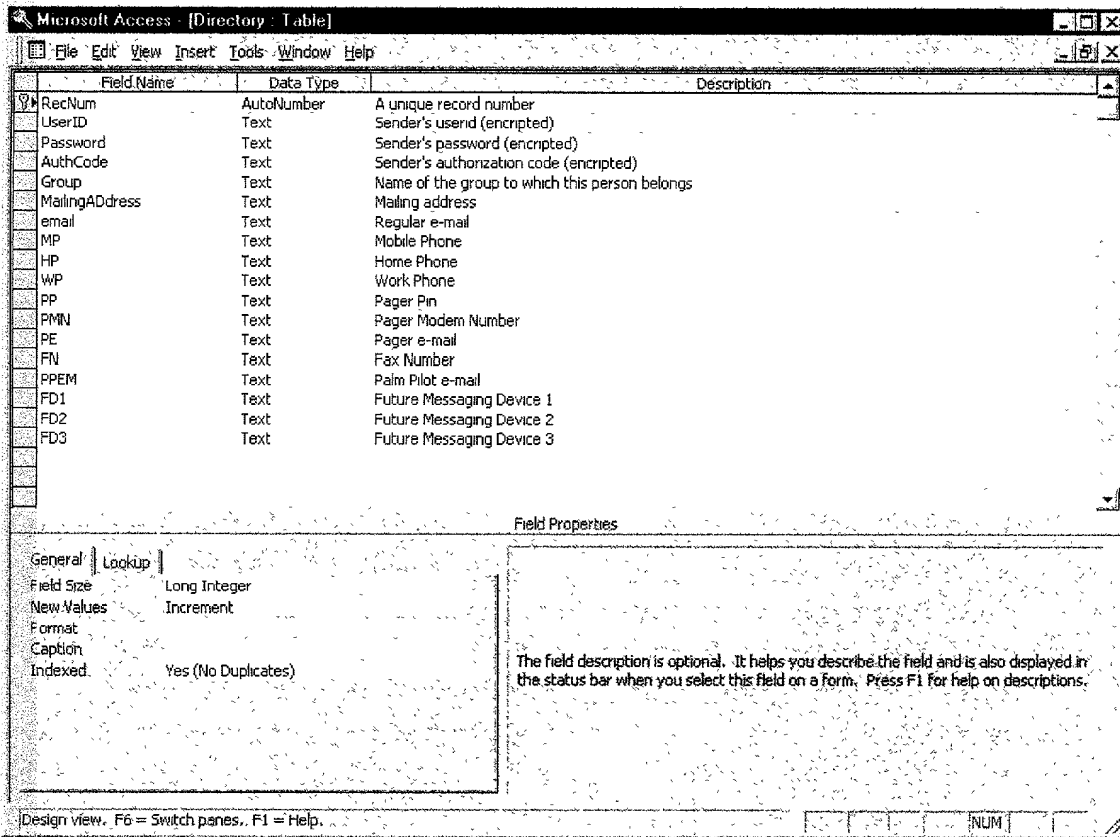


FIG. 9 Sample directory table

This table is used by the system to automatically get details regarding a userid (both – recipient and/or sender) and to resolve groups when sending a Group (broadcast) message.

FIG. 10

A possible automation of “Dig Test” using Electronic Messaging Engines

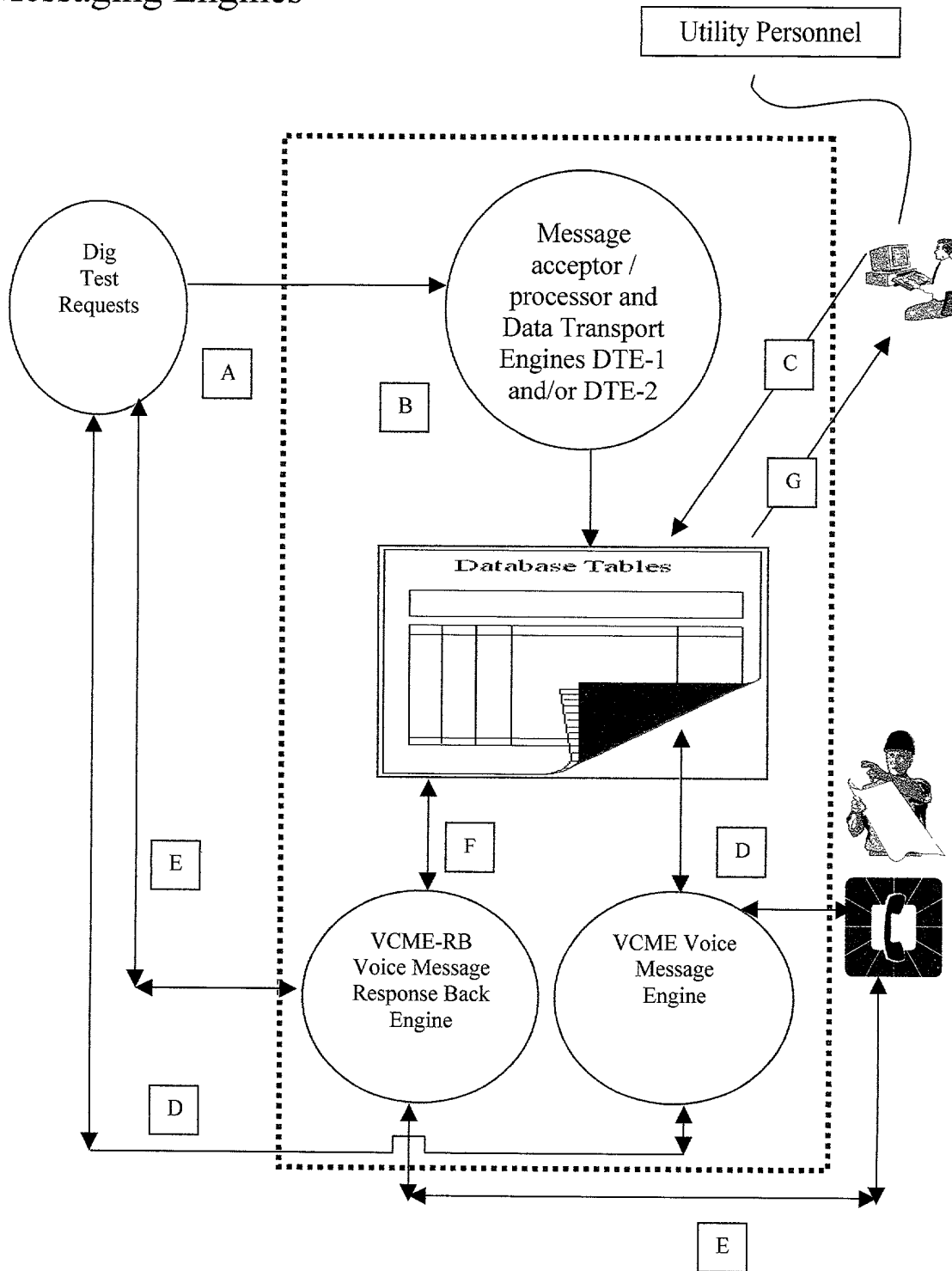


FIG. 11 Explanation of Flow Diagram of FIG 10

Step A.

The requests for "dig tests" are received via various messaging devices and methods, including, but not limited to e-mail, fax, wireless telephones, wired telephones, etc.

Step B.

These messages are accepted and processed by messaging engines such as DTE-1 and/or DTE-2 as described in the document. These engines run continuously and processes new request messages as they arrive. They extracts all required information and updates the database.

Step C.

Utility's authorized personnel authorizes or denies the request based on various laws and regulations. A GUI interface to the database allows the person to mark the record with approval or disapproval.

Step D.

Another automated messaging engine, such as , but not limited to the Voice Message Engine (VCME) , engine which runs continuously scans for such approvals or disapprovals from Step C above. It used advanced telephony technologies to call the appropriate telephone numbers and deliver the approval or disapproval message to the appropriate party. A Utility technician may also be alerted to provide further assistance to the dig requestor.

Step E and F.

The technician out in the field, after receiving a message from the system, calls back to acknowledge receipt of the message. The response back engines, such as, but not limited to the Voice Message Response Back (VCME-RB) engine intercepts the calls from technicians. The system prompts the technician for validation, such as a password, authorization code, and/or a matching request number. If the information is correct, the VCME-RB module updates the database indicating that the technician has acknowledged receipt of the message. Similarly, a message is also sent back to the dig requestor and is prompted to acknowledge receipt of the message using the telephone keypad or voice. The database is updated with the current status (step F).

Step G.

Authorized Utility personnel can further view and report on status of various requests or take other actions via a GUI interfaces to the database.

FIG. 11